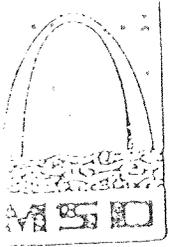


NRC Correspondence



Metropolitan  
St. Louis Sewer  
District

Department of Environmental Compliance  
10 East Grand Avenue  
St. Louis, MO 63147-2913  
(314) 436-8710  
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## TELECOPY COVER SHEET

TO: JOANNA ALLEN

FAX NO. 313-256-8015

FR: BERNIE RAINS

OF THE DEPARTMENT OF ENVIRONMENTAL COMPLIANCE  
10 EAST GRAND AVENUE, ST. LOUIS, MO 63147-2913  
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TOTAL PAGES (INCLUDING COVER SHEET): nine (9)  
~~eight (8)~~

DATE/TIME: 8/26/93 1045

REMARKS: per your request  
BR

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transmission, please contact  
The Department of Environmental Compliance - MSD



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

R. ... ..

FEB 20 1991

November 15, 1990

Environmental Compliance

MEMORANDUM FOR: Charles E. Norelius, Director, Division of  
Radiation Safety and Safeguards

FROM: B. J. Holt, State Agreement Program Officer

SUBJECT: TRIP REPORT - METROPOLITAN ST. LOUIS  
SEWER DISTRICT  
OCTOBER 4, 1990

The Board of Trustees of the Metropolitan St. Louis Sewer District (MSD) has proposed an ordinance which imposes additional restrictions on the disposal of radioactive waste in the district's sanitary sewer system. The proposed ordinance is more restrictive than the NRC's regulations in 10 CFR 20.303. On October 4, 1990, I met with Bernard A. Rains, P.E., Director of MSD's Department of Environmental Compliance. The purpose of the meeting was threefold: (1) to inform Mr. Rains of the Commission's concerns and current efforts involving the issue of reconcentration of radioactive material in sludge and other sewer waste streams; (2) to review and discuss any data the district had collected which might indicate a problem or a potential problem with reconcentration of radioactive materials; and (3) to evaluate the need for sampling sludge and other effluents in MSD's treatment plants for radioactivity content. The following report summarizes the result of the meeting.

Metropolitan St. Louis Sewer District - Background Information

The Metropolitan St. Louis Sewer District is responsible for collecting, transporting and treating wastewater generated in the city of St. Louis and nearly all of St. Louis County. It encompasses an area of 524 square miles. MSD is publicly-owned, non-profit, and supported by taxes and various charges levied on customers. MSD operates 15 treatment plants. Approximately 300 million gallons of wastewater are treated on a daily basis. See MSD organization chart - Attachment 1.

During the first step of the treatment process (primary treatment), solids found in the water are removed by bar screens or are allowed to sink to the bottom of settling tanks. The sludge resulting from the settling process is incinerated or treated further in an anaerobic digester. In the second stage (secondary treatment), oxygen is pumped through the water to freshen it and to allow microorganisms, placed in the water, to live. These microorganisms

feed on the contaminants in the water and later sink to the bottom of the tank where they are removed. After secondary treatment, the wastewater is 90% cleaner than when it first entered the treatment facility and is discharged into either the Mississippi, Missouri or Meramec rivers. All MSD treatment plants provide primary and secondary treatment, except the Bissell Point Plant which currently only provides primary treatment. See illustration - Attachment 2.

*Now secondary* → The Department of Environmental Compliance monitors MSD's facilities, major industries and local waterways to insure that federal, state, and local environmental requirements are met. The Department collects wastewater samples on a periodic basis and analyzes them for various non-radiological pollutants including organics, inorganics and heavy metals. See Department organization chart - Attachment 3.

*do have ask analysis* Mr. Rains is concerned that there is no concerted effort by the regulatory agencies to evaluate the impact of numerous facilities discharging radioactive materials into the sewer system. He is concerned about the potential hazard to treatment plant employees and to the general public if radioactive materials are being concentrated in sewer waste streams. He does not know whether a problem actually exists. The Department has no data on the radioactivity content of sewer samples. He believes, however, that larger quantities of radioactive materials will be discharged into the sewer system as a result of the development of liquid scintillation media with less chemical toxicity and the NRC's BRC policy statement. Mr. Rains views the proposed ordinance as a mechanism for highlighting this concern and as a preventive measure for future problems if none currently exists.

#### NRC Licensee Discharges into MSD

Using St. Louis area street guides and an NRC listing of licensees in the St. Louis area categorized by zip codes, Mr. Rains had determined that approximately 143 licensees may discharge radioactive materials into 7 MSD treatment plants, with the possibility that 54 licensees could discharge into one facility. When gauge users, radiographers, and other users of sealed sources are eliminated, the total number is reduced to 49 licensees discharging primarily into three treatment plants. Of these, a maximum number of sixteen may discharge radioactive materials into a single plant. See Attachment 4.

Evaluation of Sampling Needs

The Bissell Point, Lemay and Missouri River facilities treat the majority of the wastewater discharged by NRC licensees who use unsealed radioactive material in the greater St. Louis area. In addition, these plants serve major licensees, eg., Syncor, Mallincrodt, St. Louis University, Washington University Medical School, SmithKline Labs, American Radiolabeled chemicals, etc. Each of these facilities may dispose of small quantities of radioactive materials in the sanitary sewer system. A prime candidate facility for radiological sampling is the Missouri River Plant, which treats the wastewater discharged by several major licensees, but which has almost an order of magnitude less wastewater flow than either the Bissell Point or Lemay Plant.

If radiological sampling is desirable, Mr. Rains suggests taking composite samples of eight hours duration or longer. Information on sewage characteristics can be obtained from the Department of Environmental Compliance. The Department will be able to provide only limited assistance with sample collection because of budgetary deficiencies. A description of possible sampling locations is included on the illustration in Attachment 2.



B. J. Holt  
State Agreements Program Officer

## Enclosures:

1. MSD Organizational Chart
2. Illustration of Treatment Process
3. Department of Environmental Compliance Organizational Chart
4. Evaluation of Licensees Served by MSD
5. Miscellaneous References

METROPOLITAN ST. LOUIS SEWER DISTRICT

ORDINANCE NO. 8472

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12. Any infectious wastes, except those wastes which are authorized for disposal into sanitary sewers under State regulations 10 CSR 80-7.010 and 19 CSR 30-20.011 or more stringent local regulations.
13. Any radioactive material, except those wastes which are authorized for disposal into sanitary sewers under applicable State and Federal regulations and as specifically authorized by the Director. The aggregate of all radioactive materials discharged from all users to the sewers tributary to each of the District's treatment plants shall be limited to one (1) curie per year. Excreta from individuals undergoing medical diagnosis or treatment with radiological materials shall be exempt from this prohibition. Any radioactive material discharged to the wastewater system must be readily soluble or dispersible in water.
14. Any substance in quantities which either alone or in combination with other wastes results in the formation within the wastewater system of any malodor, foam, or other condition which is capable of creating a public nuisance or hazard to life or interferes with operation and maintenance of the system.

Section Two - Discharge Limitations.

The limitations for quantities and/or concentrations of pollutants contained in this section apply to all users who discharge to the District's wastewater system.

AUG-18-1993 11:32 FROM GAO DETROIT

TO

913147686355

P.02

QUESTIONNAIRE FOR WASTE WATER TREATMENT PLANTS

Name of Plant \_\_\_\_\_

Location of Plant \_\_\_\_\_

NPDES License Number \_\_\_\_\_

Name of Respondent \_\_\_\_\_

Title of Respondent \_\_\_\_\_

Background:

The U.S. General Accounting Office, a federal oversight agency, has been asked by Congress to obtain some information from select waste water treatment plants to determine whether they are being affected by the activities of Nuclear Regulatory Commission (NRC) licensees.

The telephone interview should take no longer than 30-45 minutes.

AUG-10-1993 11:33 FROM GAO DETROIT

TO

913147686355

P.03

SECTION I - GENERAL INFORMATION

1) How many plants do you have where sludge is processed?

12 <sup>17</sup>

2) How many of these plants incinerate some or all of your sludge?

2

3) How much sludge does your plant(s) process each year and what percentage of it is incinerated?

61,767 ton/yr

99 %

~~67,000~~

82,000

4) What do you do with the sludge and ash from the plant?

	<u>Sludge</u>	<u>Ash</u>
Disposed of on-site: (Describe)	<u>incinerated</u>	<u>stored on site then landfilled</u>

Disposed of off-site:

Private land fill

\_\_\_\_\_

X

Public land fill

\_\_\_\_\_

\_\_\_\_\_

Agricultural use

\_\_\_\_\_

\_\_\_\_\_

Unknown

\_\_\_\_\_

\_\_\_\_\_

Other (Describe)

\_\_\_\_\_

\_\_\_\_\_

5) Do you keep records of what is done with the sludge and ash?

	<u>Sludge</u>	<u>Ash</u>
Yes (Describe)	<u>X</u>	<u>X</u>
	Total tons processed & disposed. Analytical analysis.	

No

6) Are you required by regulation to inform someone about what is done with the sludge and ash?

<u>Sludge</u>	<u>Ash</u>
Yes <u>X</u> : No _____	Yes <u>X</u> : No _____
Identify <u>MDNR</u>	Identify <u>MDNR</u>

7) To the best of your knowledge, do you specifically know of any NRC licensees that are or have discharged radioactive material into your sewer system or don't you know?

Yes X No \_\_\_\_\_ Don't know \_\_\_\_\_

Identify NUMEROUS hospitals, pharmaceutical mfg, labs, medical schools, industrial

If YES, what problems have you encountered as a result of these discharges?

~~NONE KNOWN~~

above background levels for various isotopes & daughters (i.g. radium 226, radium 228, thorium, potassium, beryllium, ~~radon~~ radon, polonium, cesium, cerium, bismuth, etc)

ordinance provision: developed

If NO or DON'T KNOW, what problems would you foresee if NRC licensees were discharging radioactive material into your sewer system?

8) Are you aware of the issue of reconcentrating radionuclides in sewage sludge and ash?

Yes X No \_\_\_\_\_

9) How much of a problem is that in your opinion?

*We require that discharges be fully soluble & readily dispersed in water.*

- suspect elevated levels*
- " quantities increasing*
- health effects*
- aquatic effects*

GO TO SECTION II IF YOU ARE AWARE OF THE PROBLEM OF RECONCENTRATING  
RADIATION IN SEWAGE SLUDGE

SECTION II:

1) Reconcentration of radionuclides in sewage sludge:

A) How did you find out about this particular problem?

common problem in sewage associated w/any materials why not plus testing of ash

B) Who provided you the information?

~~Bernie Rains~~ Radiation Management Corp.  
Eberline  
NVS Mellinckrodt Chem. Co.

C) How was the information provided to you (e.g. letter, visit, etc.)?

~~verbally~~ lab reports + consultant studies

D) When did this occur?

~~1993~~ 1979 to date  
1980

2) Have you changed your procedures for disposing of both sludge and ash from your plant since you became aware of the problem of reconcentration? How?

No. stored on-site in remote area with cover material

3) Did you assess whether reconcentration was occurring in your system? (PLEASE PROVIDE INFORMATION FOR ALL YOUR SITES THAT APPLY)

?  Yes  No (Skip to 3.II.A) assuming because of process (heavy metals)

AUG-10-1993 11:35 FROM GAO DETROIT

TO

913147686355

P.07

I) If the response to question 3 is YES:

A) How did you go about assessing the extent of the problem?

B) Was some government entity involved in the assessment?

\_\_\_\_\_ Yes

\_\_\_\_\_ No

Describe \_\_\_\_\_

C) What was the result of your assessment? (NOTE: If nothing was found as a result of the assessment, skip down to Question 4.)

D) Were any radiation readings made at the site (i.e. plant, process area, storage area)?

\_\_\_\_\_ Yes (Describe the readings)

\_\_\_\_\_ No

E) Which radionuclides were identified?

F) Does your facility require cleanup of radionuclide materials?

\_\_\_\_\_ Yes

\_\_\_\_\_ No (Skip down to Question 4)

If Yes,

a) What is the status of this cleanup?

b) How much will it cost to clean up the site and who will pay for it?

c) When will the remediation activity be finished?

d) What disposal method (e.g. burial, disposed of at licensed facility, etc.) is being used to remediate the site?

e) Will the cleanup bring your sites to below NRC regulatory limits?

\_\_\_\_\_ Yes                      \_\_\_\_\_ No                      \_\_\_\_\_ Don't know

f) Will NRC or some other government entity provide assistance (e.g. technical, financial) in the assessment or cleanup?

\_\_\_\_\_ Yes (Describe)

\_\_\_\_\_ No

g) Is any government entity overseeing your assessment or cleanup?

\_\_\_\_\_ Yes (Describe)                      \_\_\_\_\_ No

II) If the response to question 3 is NO:

A) Do you plan to do an assessment of your site?

Yes, then when? in progress

No, then why not?

4) Have any measures (e.g. dosimeters, health studies) been taken to assess the effect radiation exposure may have on your workers?

Yes (Describe - Was this self-initiated?)

No

5) Have any measures (e.g. security fencing, soil sampling in the adjoining neighborhood) been taken to protect the public from possible exposure to low-level radioactive materials?

Yes (Describe - Was this self-initiated?)

Ordinance discharge limitation

No